

3-12-47 1947

FIREPROOF ROOF DECKS

U.S.
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UNITED STATES GYPSUM COMPANY

GYPSUM ROOF DECKS • STEEL ROOF DECKS

REGULARLY SPECIFIED BY PROMINENT ARCHITECTS

Proved by the millions of square feet now in service, U·S·G roof constructions offer positive advantages to the architect who specifies them. More than that, he has at his service U·S·G's over thirty years of roof deck experience, plus the assistance of U·S·G District Engineers in design and selection of type. Licensed fireproofing contractors are located in all principal cities to erect the U·S·G poured in the field constructions.

U·S·G roofs do everything the ideal roof should do. Made of fireproof gypsum, or steel, they protect against fire, yet are so light in weight they reduce the costs of supporting frame work. The gypsum types being effective heat insulators in themselves, can be further insulated. All are protected by standard waterproof roof coverings. Under normal conditions U·S·G roofs are proof against rot, decay and usual factory gases. Pleasing in appearance, high in light reflective values, they are easily and quickly renovated with factory paints—economical Texolite* Water thinned paints do a most satisfactory job.

For quick comparison, the opposite page illustrates the various construction methods available. Complete description and illustration of each type, follow on later pages.

LIGHT WEIGHT

Precast gypsum constructions are light in weight because gypsum is inherently light. The use of Gypsum Fiber Concrete for poured in place construction results in an especially light-weight structural slab. Steel roof decks are even lighter where dead load is an important factor.

ADAPTABLE

Gypsum types are readily poured in place or cut to fit (when precast); practically any structural requirements may be met. Steel deck is furnished in sheet lengths to fit purlin spaces.

LIGHT REFLECTIVE

The smooth, white, closely knit gypsum surfaces are well known as efficient reflectors of light; when soiled by time, both color and reflective ability are easily restored with U·S·G Texolite paints.

NAILING BASE

Gypsum roof decks have good nail holding power. A standard 2-in. galvanized roofing nail driven to 1½-in. penetration resisted a pulling load of 180 pounds.

INSTALLED QUICKLY

Precast Gypsum and Steel Deck constructions are ready for erection when they arrive from the mill. Poured-in-place gypsum sets in less than a half hour and may be subjected to full live loads immediately after the set.

LOW MAINTENANCE COST

All types do not rot, burn, decay, nor do they stain other materials. They are vermin-proof.

HEAT INSULATING

Gypsum, unlike most fireproofing materials, is an excellent heat insulator. Gypsum roofs are generally amply heat insulative to prevent condensation under any normal building exposure. Steel Decks require added insulation.

HEAT LOST THROUGH VARIOUS
ROOF DECK CONSTRUCTIONS

(In B.t.u. per hr. per sq. ft. per deg. diff. F.)

Pyrobar* Short Span Tile (3 in. solid) . . . . .	.48
2½ in. Sheetrock-Pyrofill* . . . . .	.38
2½ in. Sheetrock-Pyrofill plus ½ in. Weatherwood . . . . .	.24
3 in. Sheetrock-Pyrofill* . . . . .	.34
3 in. Weatherwood-Pyrofill* (1 in. board) . . . . .	.19
Steel Deck plus 1 in. Weatherwood . . . . .	.24
Corrugated Sheet Iron	1.50

Note: 5-ply roof covering included except on corrugated sheet iron.

ECONOMICAL

Low in first cost; reductions in cost of supports, speed of completion and erection economies provide additional savings.









ENGINEERING SERVICE

Trained engineers, experienced in all aspects of roof work are available quickly, at short notice, for advice and consultation without charge—phone nearest office. Note: Where abnormal conditions exist due to heat humidity or acid we recommend that our nearest district engineer be contacted to make a technical analysis and recommendations.

ERECTION

The skilled erection services of U·S·G approved FIRE-PROOFING CONTRACTORS are available in all localities.

*Reg. Trade Mark

	Size	Average Wt., Lbs. /Sq. Ft.	B.T.U. Value	Relative Cost*	Recommended Uses	Pages
USG GYPSUM PLANK  <i>2 1/2" x 15' x 10'</i> <i>0.30 w/ plaster</i>	2 in. x 15 in. x 10 ft.	12	.58	I	For roof slabs of light weight, speedy erection	4 and 5
2 1/2" TONGUE AND GROOVE  <i>max 4' span</i>	2 1/2 in. x 10 in. x 6 ft.	15	.53	I	For roof slabs with close beam spacing	5
SHORT SPAN TILE 	3 in. x 12 in. x 30 in.	17	.48	II	For light weight, flexible roof decks. Solid tile has great nail holding power for attaching ornamental roof coverings	6 and 7
SHEETROCK PYROFILL  <i>0.35 w/ plaster</i>	2 1/2 in. Standard plus 1/2 in. insulation	11.5 12	.38 .24	I II	For light weight, low cost, speedily erected roof slabs	8 and 9
WEATHERWOOD PYROFILL 	3 in. Standard	10.5	.19	II	For light weight, low cost roof slabs with additional insulation value	8 and 9
PYROFILL MONOLITHIC 	3 in. Thick 3 1/2 in. Thick 4 in. Thick	13 15 17	.35 .32 .29	I II III	For light weight, full fireproof roof slabs. Speedily erected. Not adapted to small areas	8 and 9
PYROFILL EMBEDDED RAIL 	3 in. Thick 3 1/2 in. Thick 4 in. Thick	14 16 18	.35 .32 .29	II III IV	For light weight, full fireproof roof slabs. Speedily erected	8 and 9
STEEL DECK 	18 and 20 Gauge 1/2 in. Insulation 1 in. Insulation 1 1/2 in. Insulation	3 3.5 4	.38 .24 .17	I II III	For light weight, quickly erected, low cost roof decks. Insulation should always be added. Add insulation to suit	10 and 11

*"I" indicates least expensive; "II" indicates more expensive than "I," etc.

U·S·G GYPSUM PLANK

For roof decks, where a light weight, fireproof insulative construction is desired. Suitable for all roof loads such as on industrial buildings, apartments, hotels, schools, etc. Tongued and grooved on four edges, U·S·G Gypsum Plank forms a continuous structural deck.

ADVANTAGES

Lightweight—U·S·G Gypsum Plank weigh only 12 lbs. per sq. foot.

Safe Load—The safe superimposed load on a maximum span of 7'0" is 75 lb. per sq. ft. established through tests by nationally recognized laboratories.

Rapidly Installed—Each "plank" is laid without mortar and quickly clipped to the supports. The wide, tapered groove and matching tongue fit snug and tight as each unit slips into place without ramming.

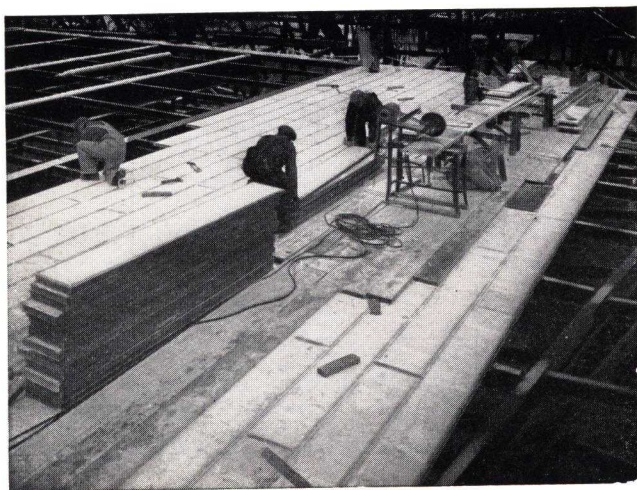
Beam and Purlin Spacing May Vary—The long "planks" cantilever over the supports. Since joints are broken between courses, each cantilevered end is supported at either side by a continuous steel beam formed by the metal edging of the adjacent tile. The end joints, likewise, are interlocked. The result is a deck monolithic and continuous in structural effect, which permits variation in the spacing of supporting steel, provided they are within the maximum spacing of 7'0" center to center.

Saves Labor—The combination of no mortar, large units and rapid erection cut installation costs to a minimum.

Other Advantages—U·S·G Gypsum Plank embodies the advantages inherent in gypsum as outlined on page 2.

PLANK DESIGN DATA

The steel edges of U·S·G Gypsum Plank and the gypsum body are keyed together by closely spaced loops, expanded from the steel edging, which project into the "plank" body as it is cast at the factory. The wide face of each loop is at right angles to the plane of the loop preventing any cleavage planes at that point. Cutting individual units for the ends of courses does not impair their bond.



U·S·G Gypsum Plank are economical and easy to erect since they are installed much like matched and dressed wood.

Tongue and groove are substantial. Groove is wider than end of tongue permitting ready nesting when supporting steel members are not quite on the same plane.

The steel edging for each plank is made in two pieces, each enclosing one long and one short edge of the plank, with a mitre at the corner. All corners are reinforced with steel reinforcements clinched in.

SHORT FORM SPECIFICATIONS

GYPSUM ROOF DECKS

Scope of Work —

The entire (here describe area to be covered) shall be covered with U·S·G Gypsum Plank, installed over steel framing per manufacturers' standards.

Gypsum Plank shall be 2" x 15" x 10'0", standard metal bound tongued and grooved precast gypsum roof tile as manufactured by the United States Gypsum Company, Chicago, Illinois.

Installation —

All plank shall be set on the supporting steel with close joints and with ends staggered in adjacent rows, starting with alternate full and fractional length units. Each plank shall be anchored to the supporting steel at each point of support with a clip. The clips are to be alternated by placing first on the right hand flange of the beam, then the next clip position on the left hand flange, etc.

Cut plank to fit at walls, eaves, curbs and around openings per manufacturers' standards.

Curbs —

All curbs to be of precast gypsum tile units suitable for the purpose.

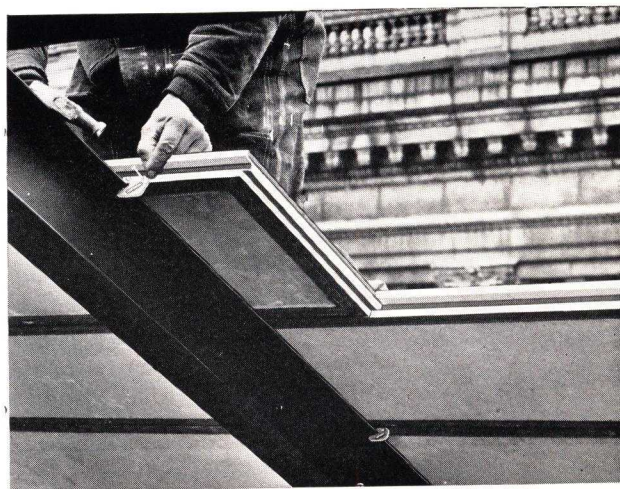
Cants & Fills —

From all cants and drainage fills, so indicated, with field mixed gypsum (Pyrofill) and screed to provide slopes to roof sumps.

Note—

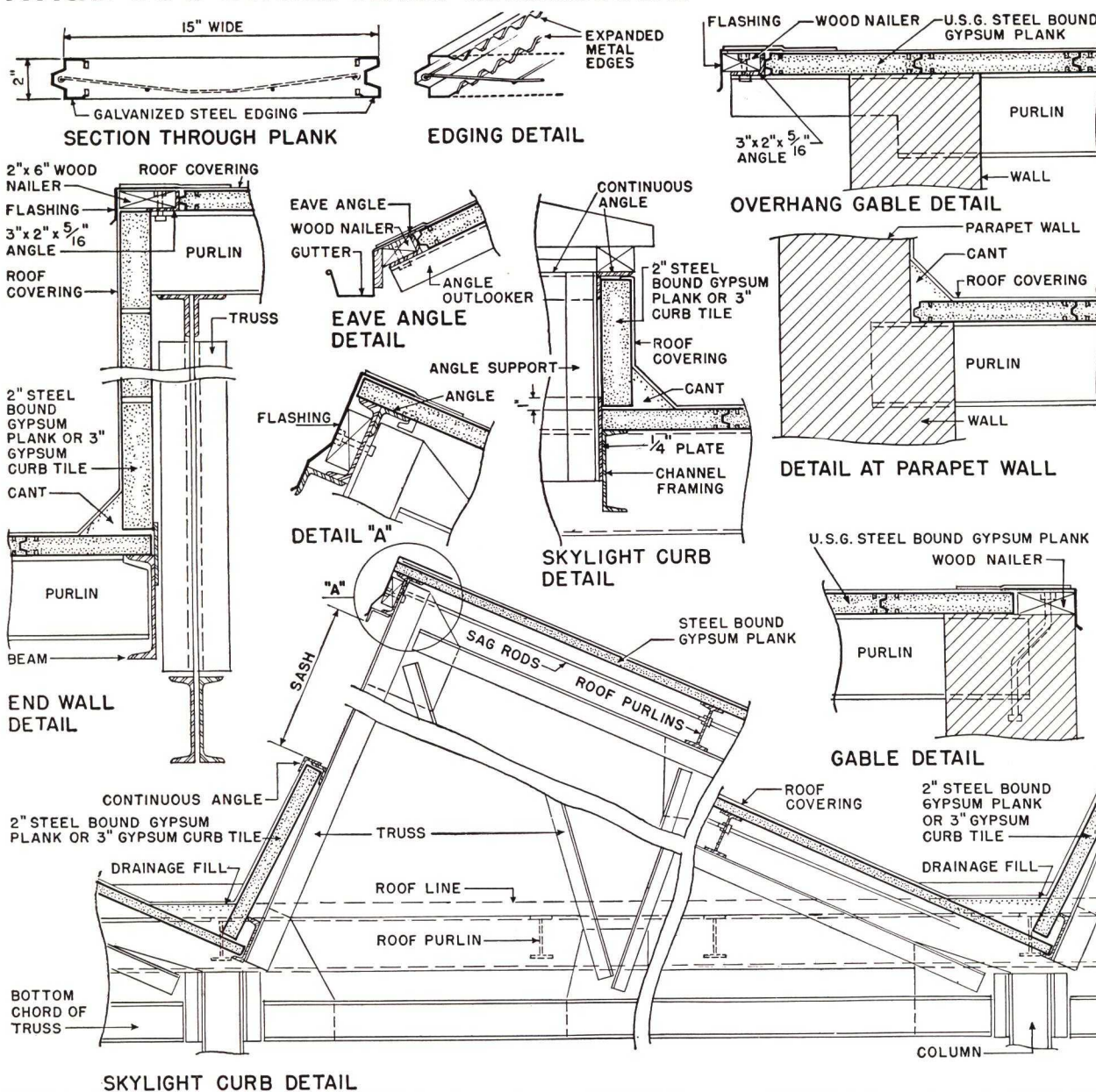
Insert in the structural steel specifications that proper framing is required around all openings greater than 10" in diameter. The steel framing may be curved or warped, but are should not be less than 150'0" radius.

When additional insulation is desired we suggest specifying U·S·G Weatherwood roof insulation manufactured by us.



U·S·G Gypsum Plank are anchored to steel supports by galvanized steel clips secured to lower flange of advancing groove.

TYPICAL U·S·G GYPSUM PLANK CONSTRUCTIONS



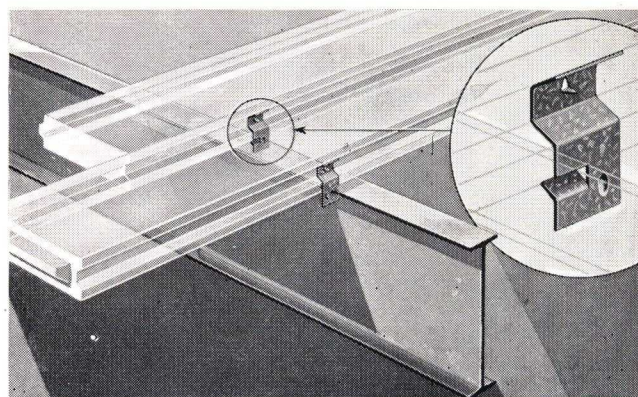
U·S·G

2 1/2 -IN. TONGUE AND GROOVE ROOF TILE

Precast gypsum units which are substantially the same design as U·S·G Gypsum Plank except that they do not have steel edging. They are 2 1/2 in. thick, 10 in. wide and 6 ft. long and weigh 15 lbs. per sq. ft. Purlin spacing may be up to 48-in. centers, with a 50-lb. per sq. ft. load.

Provides an economical construction because of light weight, flexibility and ease of erection. With a dead load of less than half that of concrete they permit economies in steel design.

Specifications—Same as for U·S·G Gypsum Plank on page 4, except insert U·S·G 2 1/2" T & G Roof Tile in lieu of U·S·G Gypsum Plank.



These clips are shaped to fit the tongue and groove joint. Right and left hand clips in the longitudinal joints provide positive anchorage.

PYROBAR SHORT SPAN ROOF TILE

These precast tile units are manufactured to form light weight, heat insulative, nailable, fireproof decks which will fit any type of roof framing. They may be erected in any weather, winter or summer.

TILE DESIGN

Tile are made in solid units, reinforced with electrically welded galvanized steel mats. Each tile is solid gypsum, 3 x 12 x 30 inches in size, weighing 17 lbs. per sq. ft. The sides are grooved at the top to form a space for grout. The grooves are so shaped that the grout is "keyed" in place.

PITCHED ROOFS

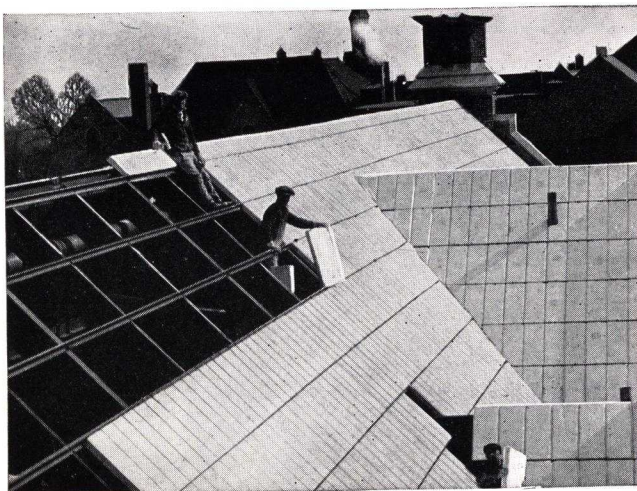
This roof tile is especially adaptable to pitched roofs where slate, architectural tile or other similar weatherproofing is applied by nailing direct to the roof deck.

REPAIRING OLD DECKS

For replacement of existing roof decks, this system of sub-purlins and Pyrobar Roof Tile is especially practical. The new deck may be laid day by day as the old one is removed.

NAILING

Where slate or ornamental tile roofings are to be nailed directly to the deck, square-cut nails having not less than 1½-in. penetration into the gypsum should be used. When heavy roofings are to be applied on very steep slopes, they should be fastened by bolting through the slab or nailed to wood grounds which are, in turn, firmly fixed to the roof deck. Because of the great expansion of sheet metal, that type of roof covering requires thoroughly rigid fastening and the metal cleats used for such purpose should be spaced not over 8 in. on centers and secured with two nails each. Ordinary built-up roof covering is applied in accordance with standard practice.



Pyrobar Roof Tile are adapted to construction involving steep slopes.

U·S·G SUB-PURLINS

The need for more efficient and economical sub-purlins has been met by the development of the U·S·G Bulb-Tee Section. This well balanced section provides greater strength and bearing surface for the tile than standard tees of equal sectional area and weight.

SHORT FORM SPECIFICATIONS

PYROBAR SHORT SPAN GYPSUM ROOF TILE GYPSUM ROOF DECKS

SCOPE OF WORK:

The entire (here describe the areas to be covered) shall be covered with Pyrobar precast gypsum roof tile complete with steel subpurlins and grouting mortar. Apply over steel framing in accordance with the manufacturer's standards.

MATERIALS:

Pyrobar precast gypsum roof tile shall be 3" x 12" x 30" solid, reinforced with galvanized wire mesh, and with grouting grooves on sides. Manufactured by United States Gypsum Company, Chicago, Illinois, subpurlins shall be U·S·G No. 218 bulb tees (shop painted).

GROUT:

Grouting mortar to be U·S·G Grouting Cement mixed with water in the proportion of one part cement to two parts of clean, sharp sand (by weight).

INSTALLATION:

U·S·G bulb tee subpurlins shall be spaced 30½" on centers and firmly welded to the structural steel framing at each intersection.

Pyrobar tile to be placed between the subpurlins, laid dry, with ends supported on subpurlin flanges and sides butted tight. Cut to fit at all walls, curbs, eaves, ridges, etc., as required. Grout all joints from the top and cut mortar off flush with the surface of the tile, leaving the deck suitable to receive the weatherproofing specified under another heading.

Install curbs of suitable precast gypsum tile per manufacturer's standards.

Form cant strips and drainage slopes as indicated, using U·S·G Pyrofill (gypsum fiber concrete) in accordance with manufacturer's recommendations.

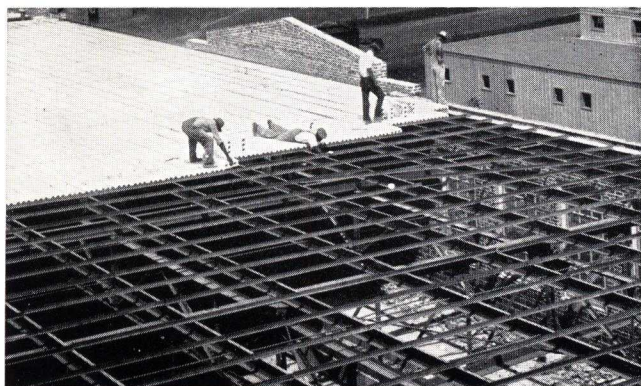
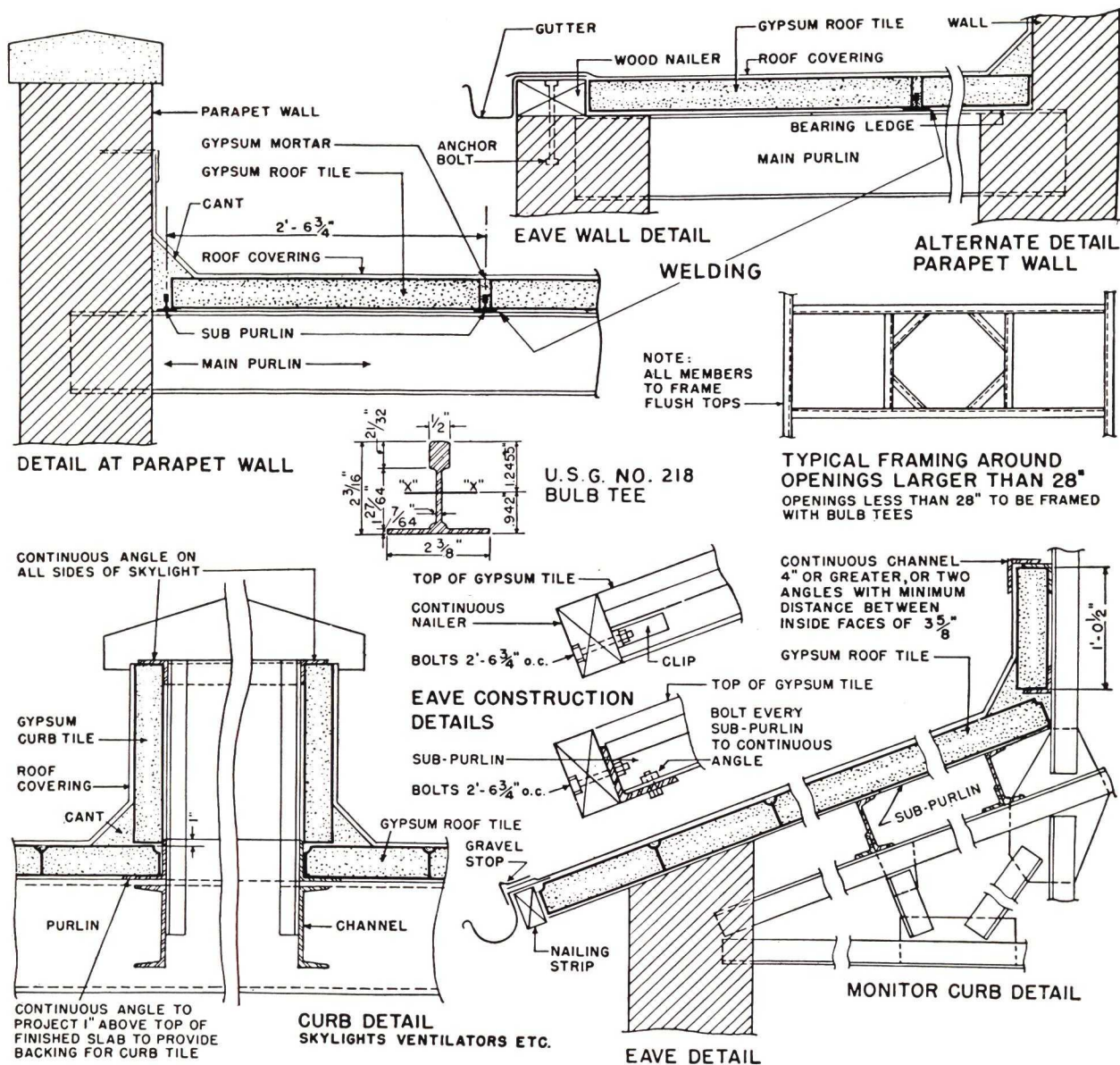
TEE SIZES AND ALLOWABLE SPANS

Based on 50 lbs. per Sq. Ft. Total Roof Load
Tees Spaced 2 ft. 6¼ in. C. to C. $M = 1/10 WL$

Size of Tee Weight per Foot	Allowable Span		Wt. of Tees lbs. per Sq. Ft. of Roof
	18,000 lbs. per Sq. In. Stress	20,000 lbs. per Sq. In. Stress	
No. 218 U·S·G 2.77 lb. Bulb Tee	7 ft. 5 in.	7 ft. 10 in.	1.08
2½ in. x 2½ in. 5.5 lbs.	7 ft. 8 in.	8 ft. 1 in.	2.15
2½ in. x 3 in. 6.1 lbs.	9 ft. 2 in.	9 ft. 8 in.	2.4
3 in. x 3 in. 6.7 lbs.	9 ft. 4 in.	9 ft. 10 in.	2.61

* Reg. Trade Mark

TYPICAL PYROBAR ROOF TILE CONSTRUCTION



Equally adapted to flat as sloping roofs, Pyrobar Roof Tile are being installed here on a long, wide surface.



Underside of roof showing light reflecting quality of Pyrobar Roof Tile.

PYROFILL ROOF DECKS

Pyrofill, a quick setting, light weight concrete, made of gypsum stucco, wood fibre and water, is poured over a continuous, electrically welded, galvanized steel fabric onto either a fireproof Sheetrock form or, when additional insulation is required, onto forms made of sound absorbent, insulating Weatherwood. Either form becomes a permanent part of the deck.*

ADVANTAGES

The resulting constructions are light weight (see table below), heat insulating—reducing condensation difficulties; exceptionally strong and durable. The upper surfaces are without joints. The under surfaces present a pleasing panel design.

These roof constructions offer maximum economies where large areas of deck must be erected rapidly and roof pitches do not exceed 45°. On roofs of greater pitch back forming may be necessary.

Sheetrock and Weatherwood are described in the U·S·G Catalog in Section 11.

CURBS, WALLS, ETC.

Usually constructed of pre-cast gypsum tile. They may be also poured in place using the Sheetrock-Pyrofill or Weatherwood-Pyrofill construction, if desired.

TYPES OF PYROFILL CONSTRUCTION

Sheetrock-Pyrofill—Undersurface is Sheetrock, fireproof gypsum board, 32 in. wide, in lengths equal to purlin spacing, so that end joints occur over main purlins. Steel sub-purlins of light rails or tee sections are laid at right angles and welded to main purlins and spaced approximately 32 $\frac{5}{8}$ in. on centers. Pyrofill construction may be used over light steel beams or bar joists without sub-purlins if steel spacing does not exceed 36 in.

Weatherwood-Pyrofill—Here, 1" Weatherwood, a light weight insulating fibre board, is used for the permanent form. Not as light reflective as Sheetrock, it provides additional insulation (see table page 2) and approximately .45 sound absorption units per square foot of surface.

Other Types—PYROFILL MONOLITHIC CONSTRUCTION differs from the foregoing in that load is carried entirely by small steel wire cables closely spaced, and anchored at both ends by bent strap iron. Temporary wooden forms are used. Forms may also be built around beams and girders to provide monolithic fireproofing for these members at the same time.

PYROFILL EMBEDDED RAIL CONSTRUCTION is similar to Sheetrock-Pyrofill in that standard rail sub-purlins span the purlins, over which fabric is laid. Removable wooden forms are hung not less than $\frac{3}{4}$ in. below top of main purlins. Thus rails are embedded in the Pyrofill and there is an all gypsum under-surface.

SUB-PURLIN SIZES AND WEIGHTS OF SLABS

Sub-Purlins Spaced 32 $\frac{5}{8}$ "

Total Load—45 Lbs. per Sq. Ft.

M = 1/10 WL

Size of Sub-Purlin (Weight per Yard)	Allowable Span		Weight of Sub-Purlins in lbs. per sq. ft. of Roof	Weight of Slab including Sub-Purlins			
	18,000 lbs. per sq. in. Sub-Purlin Stress	20,000 lbs. per sq. in. Sub-Purlin Stress		Sheetrock Pyrofill		Weatherwood Pyrofill	
				Minimum Slab Thickness*	Weight in lbs. per sq. ft.	Min. Slab Thickness*	Wt. per sq. ft. in. lbs.
						1" Bd.	1" Bd.
No. 218 USG 8.3-lb. Bulb Tee	7'-6"	7'-10"	1.02	2½"	11.5	3"	10.5
12-lb. Rail	8'-11"	9'-3"	1.5	2½"	12.0	3"	11.0
16-lb. Rail	11'-2"	11'-6"	2	2½"	12.5	3"	11.5
20-lb. Rail	13'-3"	13'-8"	2.5	3"	15.0	3"	12.0

*Total slab thickness including Sheetrock or Weatherwood; minimum thickness of Pyrofill 2 in.

SHEETROCK—PYROFILL

SPECIFICATIONS

Scope of Work—The entire (here state area to be covered) shall be covered with a standard U·S·G Sheetrock Pyrofill (field poured) gypsum roof deck.

MATERIALS

Sub-Purlins—Shall be U·S·G No. 218 bulb-tees (shop painted).

FORMS

Permanent Centering, shall be standard U·S·G Sheetrock (or Weatherwood).

Reinforcing—Shall be electric welded galvanized wire fabric, consisting of No. 12 gauge longitudinal wires at 4-inches on centers and No. 14 gauge transverse wires at 8-inches on centers.

Slab Fill shall be U·S·G Pyrofill, consisting of 12 $\frac{1}{2}$ pounds of clean soft wood fibre to every 87 $\frac{1}{2}$ pounds of gypsum. The gypsum and wood fiber to be mill mixed. Water for proper consistency shall be added at the job site.

INSTALLATION:

Place sub-purlins at 32 $\frac{5}{8}$ " on centers and weld securely to the main purlins at each intersection.

Install Sheetrock (or Weatherwood) in panel sizes equal to the space provided by sub-purlins and main purlins, between sub-purlins.

Cut to fit at walls, curbs, etc., as required.

Reinforcing with the No. 12 gauge wires at right angle to sub-purlins. Cut to fit as required.

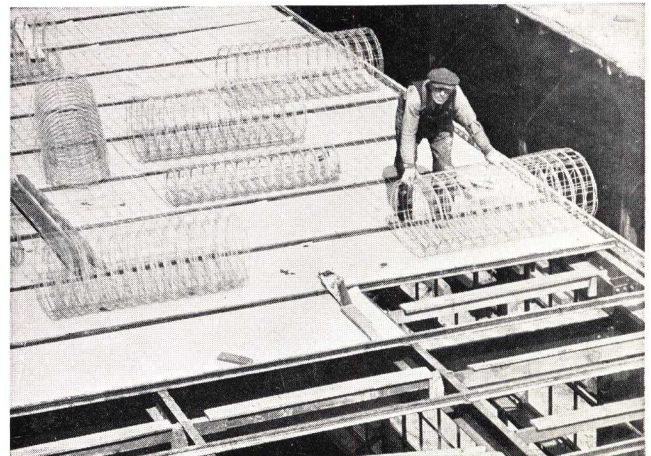
Pour Pyrofill to an average thickness of 2" over the permanent Sheetrock (or Weatherwood) and screed to an even plane suitable to receive the weatherproof covering specified under another heading.

CURBS:

All curbs indicated to be of poured in place or precast gypsum tile suitable for the purpose. All to be in accordance with manufacturers' recommendations.

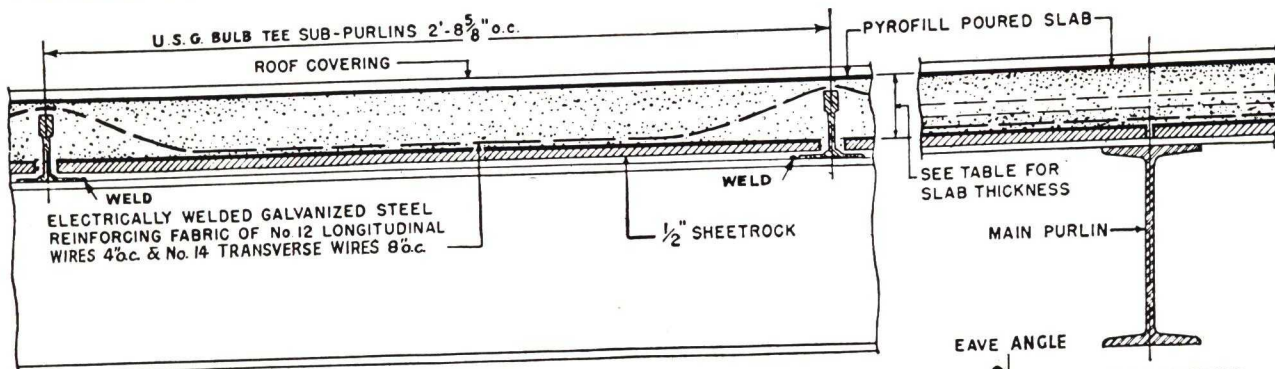
CANTS AND DRAINAGE FILLS

Form all cants and drainage fills, so indicated, with Pyrofill and screed to provide slopes to roof sumps.

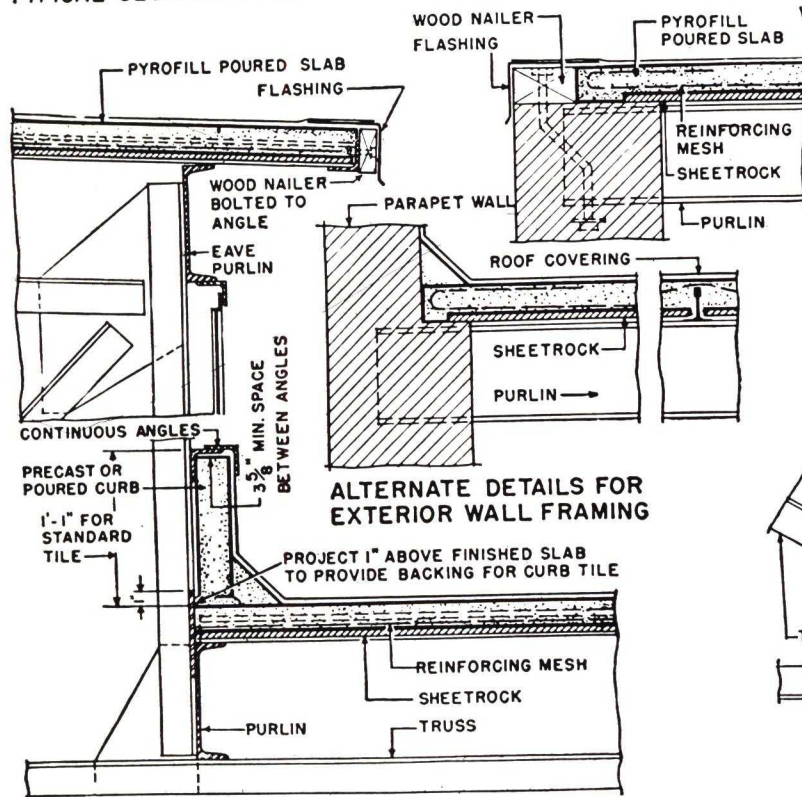


Galvanized steel fabric is laid over permanent Sheetrock or Weatherwood form.

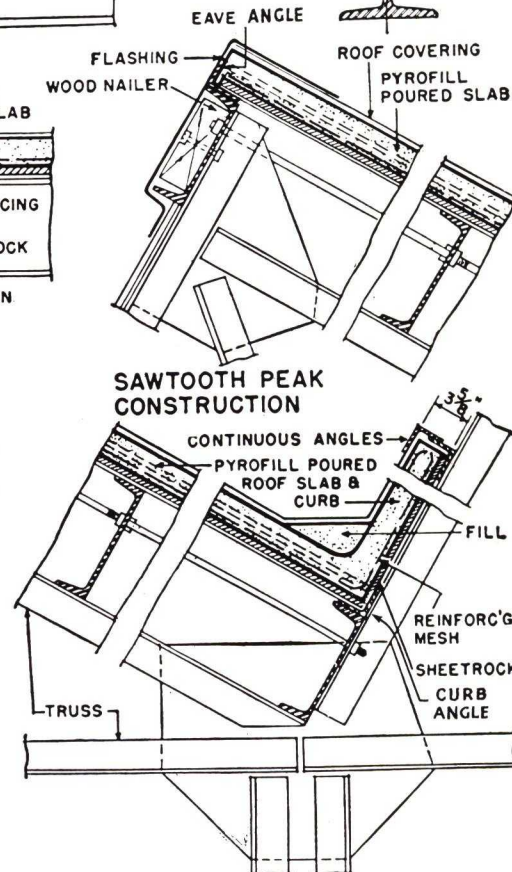
TYPICAL SHEETROCK PYROFILL CONSTRUCTION



TYPICAL SECTION THROUGH ROOF SLAB



CURB AND EAVE CONSTRUCTION FOR MONITOR



SAWTOOTH GUTTER CONSTRUCTION

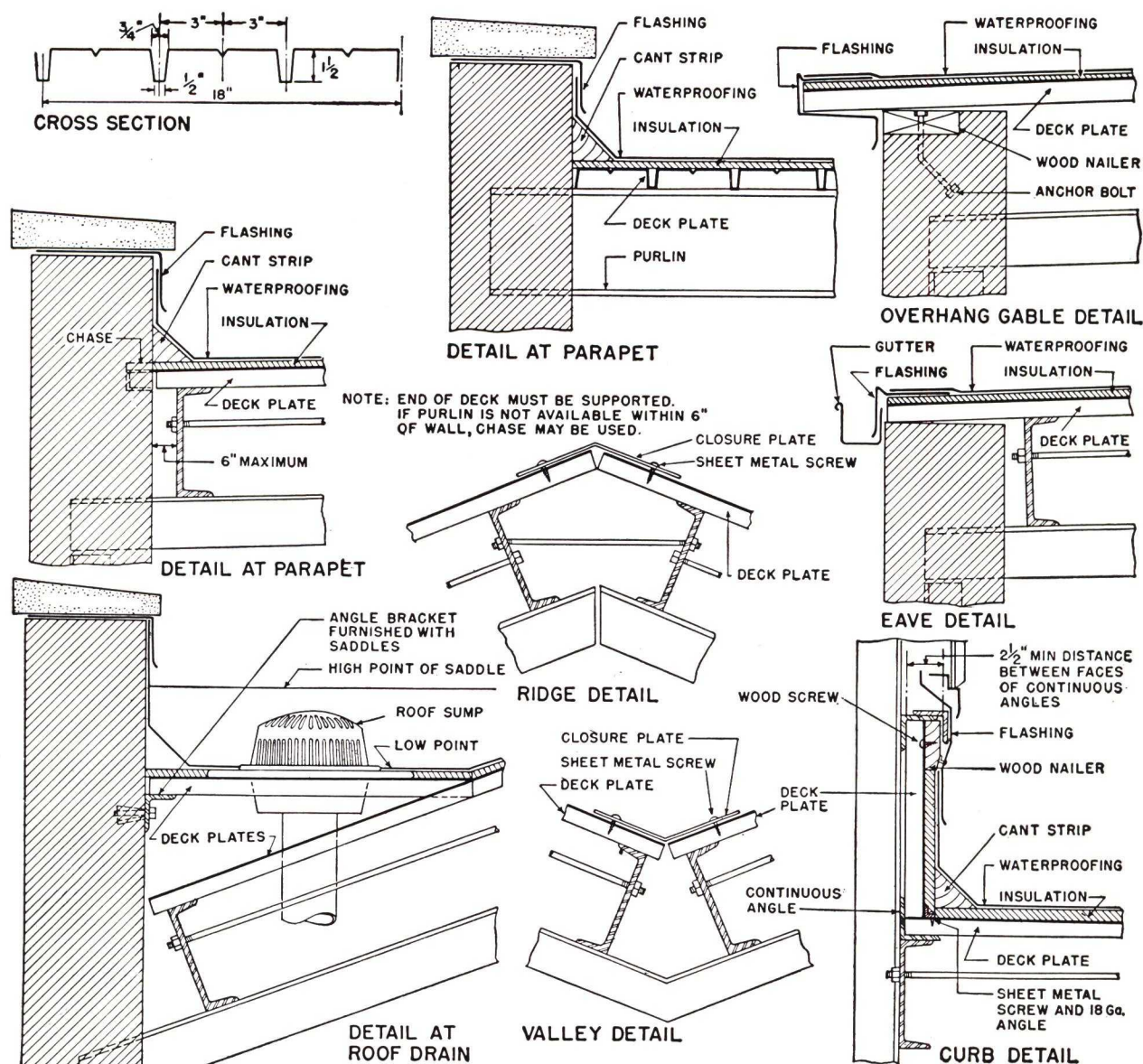


Pyrofill, plastic gypsum material, is poured over fabric and permanent form.



Underside of Pyrofill roof, illustrating the high light reflection quality of this construction.

TYPICAL STEEL DECK CONSTRUCTIONS



Light weight, preformed, interlocking, galvanized or pre-painted, copper bearing steel units—18 in. standard widths, are clipped or welded directly to the steel framing.

DECK DESIGN

Deck plates (standard width 18 in.) in lengths from 6 ft. 0 in. to 25 ft. 0 in. are rolled from 20 ga., or 18 ga. copper bearing steel and weigh 2.4 lbs., and 3.2 lbs. per square foot respectively. The design makes ample provision for expansion and contraction.

Sides of the deck plates interlock. There is a depending full straight flange on one side of each plate and a channel flange on the other side, into which the straight flange of the adjacent plate fits.

Painting—Except when made of galvanized steel, all plates are painted a semi-gloss light gray to provide good light reflection and further protect the steel against corrosion.

INSULATION

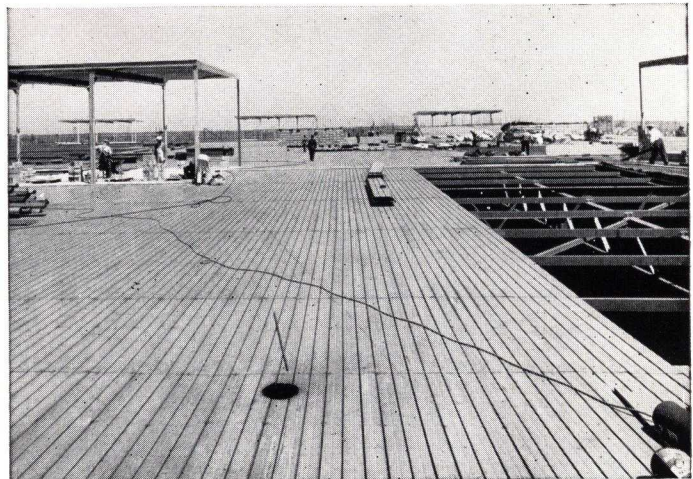
On steep slopes the RD-4 intermediate interlocking clip, exclusive U·S·G feature, is used to secure the insulation. Any standard composition roofing may be applied over Weatherwood Insulation Board.

Thermal Conductivity of Steel Deck—(In B.t.u. per hour per square foot per degree difference Fah. temperature is given in the table below.) The calculations include the insulation effect of five ply roofing. Detailed information on Weatherwood is provided in the U·S·G Catalog on Structural Insulation Products in Section $\frac{10a}{18}$.

USG Steel Deck—No insulation . . . . .	.95
USG Steel Deck—Weatherwood $\frac{1}{2}$ in. Insulation Board . . . . .	.38
USG Steel Deck—Weatherwood 1 in. Insulation Board . . . . .	.24
USG Steel Deck—Weatherwood $1\frac{1}{2}$ in. Insulation Board . . . . .	.17



U·S·G Steel Decks look well from within.



U·S·G Steel Decks are equally useful on large and small buildings.

SAFE LIVE LOADS IN LBS. PER SQUARE FOOT

Gauge	Bending Moment	Purlin Spacing								
		4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"
20	$\frac{WL}{8}$			81	67	56	48	41		
	$\frac{WL}{10}$			102	85	71	61	52	44	38
18	$\frac{WL}{8}$					71	60	52	45	39
	$\frac{WL}{10}$					90	76	66	57	50

SHORT FORM SPECIFICATIONS

Scope of the Work. The entire (here describe the areas to be covered) shall be covered with U·S·G Standard Steel roof deck (here specify gauge and if painted or galvanized).

INSTALLATION

Install steel roof deck in accordance with U·S·G shop drawings, and erection instructions furnished with each shipment.

INSULATION

Over entire area of steel deck (except as noted below) place one (1) layer of Weatherwood Insulation not less than one-half ($\frac{1}{2}$) inch thick.

Insulation boards approved for use shall be completely embedded in high temperature asphalt; sheets shall be laid with joints broken and approximately $\frac{1}{8}$ " apart. On sloping roofs of 15% pitch or more, the insulation board over the steel deck shall be additionally secured to the metal with clips, using not less than one clip to each four sq. ft. of roof area. Clips shall be of such design that they will not puncture nor project through the steel deck.

The second layer (where called for) shall be embedded in asphalt and nailed to the first layer with one (1") inch long large headed galvanized, barbed felt roofing nails, spaced at random about 15" center to center, and at all edges not over 12" center to center.



Illustrates high light reflection quality of U·S·G Steel Deck Plates. The Austin Company, Engineers & Builders.



Studebaker Aircraft Plant, South Bend, Ind. Giffels & Vallet, Architects, Detroit, Mich.

U·S·G

Sales Offices

Albany	1518 National Savings Bank Bldg.....	Albany 7, N. Y.
Atlanta	1726 Candler Building.....	Atlanta 3, Ga.
Baltimore	Court Square Building.....	Baltimore 2, Md.
Birmingham	1203 Comer Building.....	Birmingham 3, Ala.
Boston	505 Statler Office Building.....	Boston 16, Mass.
Buffalo	806 Crosby Building.....	Buffalo 2, N. Y.
Charlotte	1813 Liberty Life Building.....	Charlotte 2, N. C.
Chicago	300 West Adams Street.....	Chicago 6, Ill.
Cincinnati	1713 Carew Tower.....	Cincinnati 2, Ohio
Cleveland	627 Hanna Building.....	Cleveland 15, Ohio
Connecticut	205 Church Street.....	New Haven 10, Conn.
Dallas	30½ Highland Park, Shopping Village.....	Dallas 5, Tex.
Denver	836 Continental Oil Building.....	Denver 2, Colo.
Detroit	7310 Woodward Avenue.....	Detroit 2, Mich.
Harrisburg	807 Payne-Shoemaker Building.....	Harrisburg, Pa.
Houston	2030 Commerce Building.....	Houston 2, Tex.
Indiana	Underwriters Building.....	Indianapolis 4, Ind.
Kansas City	4638 Mill Creek Parkway.....	Kansas City 2, Missouri
Los Angeles	807 Architects Building.....	Los Angeles 13, Cal.
Metropolitan	9 Rockefeller Plaza.....	New York 20, N. Y.
Milwaukee	808 N. Third Street.....	Milwaukee 3, Wis.
Minneapolis	1300 Foshay Tower.....	Minneapolis 2, Minn.
Omaha	1315 Woodmen of World Building.....	Omaha 2, Nebr.
Philadelphia	1616 Walnut Street.....	Philadelphia 3, Pa.
Pittsburgh	1905 Commonwealth Building.....	Pittsburgh 22, Pa.
Portland	302 Spalding Building.....	Portland 4, Ore.
St. Louis	8032 Forsythe Boulevard.....	St. Louis 5, Mo.
Salt Lake	400-401 Dooly Block.....	Salt Lake City 1, Utah
San Francisco	726 Rialto Building.....	San Francisco 5, Cal.
Seattle	531 Dexter Horton Building.....	Seattle 4, Wash.
Virginia	511 Mutual Assurance Soc. Bldg.....	Richmond 19, Va.
Washington	1122 Investment Building.....	Washington 5, D. C.
Western Michigan	807 Michigan Trust Building.....	Grand Rapids 2, Mich.



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